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Phoenix: Mobile App for Rehabilitation of Undertrial Prisoners

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ABSTRACT: The increasing number of prisoners awaiting trial in India and the challenges they face in accessing rehabilitation services, there is a pressing need for innovative solutions to support their journey towards reintegration into society. The under trial prisoners are in a desperate need to access Legal or mental health support that would facilitate them to unite with their families and society. In response to this need, a mobile application specifically designed to enhance the rehabilitation process for under trial prisoners is being proposed that would be very well compatible with both Android and iOS devices. This application integrates a range of features that have been tailored to address the unique needs of individuals in detention. Through a user-friendly interface, the app offers access to vital resources and support systems. Unique Features that include a chat interface for communication with the peers, legal consultations with experienced lawyers, interactive clinic sessions to address mental health and well-being, and vocational training modules to develop skills for future employment opportunities. By harnessing the power of mobile technology, this initiative aims to break down barriers to rehabilitation and empower under trial detainees to actively engage in their personal growth and development. Ultimately, the goal is to contribute to a more inclusive and a rehabilitative justice system, where every individual has the opportunity to rebuild their lives and contribute positively to society.

KEYWORD: Undertrial prisoners, rehabilitation, mobile application, Android, iOS, chat interface, legal consultations, interactive clinic sessions, vocational training.

I. INTRODUCTION

The treatment of prisoners is a fundamental question for any society, and India is no exception. A robust legal framework protects prisoner rights and ensures humane treatment. These laws aim to find a middle ground between punishment and rehabilitation, acknowledging that even incarcerated individuals retain their basic dignity and fundamental rights.

India's legal system establishes a clear set of rules (provisions) for how prisoners are treated throughout the country. These laws cover various aspects of prison life, from how prisons are run (management) to ensuring access to lawyers (legal representation), healthcare, and programs that help prisoners re-enter society (rehabilitation programs). Ultimately, these laws aim to create a just system [1].

Overcrowding, prolonged detention of under-trial prisoners, unsatisfactory living conditions, lack of treatment Programs are being in critic for long years.

II. CURRENT ISSUES FACED BY THE UNDER TRIAL PRISONERS AGE

A. Inadequate Prison Programs

Despite the problems of overcrowding, manpower shortage, and other administrative difficulties, innovative initiatives have been undertaken in some prisons. For example, the Art of Living is carrying out a SMART program in Tihar Jail. It includes two courses per month with follow up of the sessions every weekend. Two courses are annually conducted for prison staff. But these may be more by way of exceptions and experiments. A Srijan project is aimed at providing social rehabilitation there.

Still, such programs are few and far from Indian prisons. In India, many prisons have vocational training activities, but these are often outdated even. Hardly any of the prisons have well-planned prison programs providing daily structured

activities, vocational training, pre-discharge guidance, and post-prison monitoring. There is a quite good evidence that there are very countable prison programs being arranged.

B. Insufficient Legal Aid

In India, free legal aid for those too poor to afford a lawyer is crucial for a fair trial. However, this critical support is only available at the trial stage, not when a person is first brought before a remand court.[2]. This gap is problematic because most prisoners haven't been tried yet. The lack of legal aid during this pre-trial period significantly weakens the justice system's ability to serve the underprivileged. In essence, legal help isn't available when it's often needed most.

C. Inadequate support from Legal Panel

Compounding the issue of limited pre-trial legal aid is the lack of qualified and readily available lawyers within the legal aid panels. This further hinders access to proper legal representation for underprivileged detainees.

Additionally, various suggestions have been made to expedite trial processes, aiming to reduce the population of under trials languishing in jails before their cases are even heard. A faster judicial system could significantly decrease the number of people who face these legal aid limitations.

Some of the suggestions provided by various committees were expeditious holding of trials, making it more possible for under trials to plead guilty at any stage of the trial, a system of plea bargaining. In a seminar, the tough efforts have been made at the Tihar Jail by the University of Delhi faculty and students of law in the field of legal aid were highlighted. This included imparting legal literacy to the prisoners, sensitizing the prison administration, taking up individual prisoners to provide legal aid, involving para-legal staff to work with prisoners, both convicts, and under trials. The seminar had suggested for Lok Adalat involvement to be greater and that constant monitoring of prisons was necessary to identify inadequacies and shortcomings in the prison administration. It finally suggested that there would be a need for law reform as essential to the entire system of legal aid.

A similar finding had been noted in the NIMHANS-National Commission for Women study in the Central Prison, Bangalore. In the Indian prison many of the women were illiterate, had never stepped out of their houses, had had no any financial resources and many had been arrested on petty charges. Most had no idea about legal procedures, such as, what is the process of trial, how to arrange for a defense lawyer, what laws exist to protect their children or property, etc.

III. PROBLEM STATEMENT

Due to the increasing rate of under trial prisoners and the burgeoning population within correctional facilities across India, there arises a pressing need to rethink and enhance the rehabilitation process for this demographic[2]. Recognizing the pivotal role that technology can play in addressing these challenges, the development of a mobile application using React Native and Firebase can serve as a timely and innovative solution.

IV. EXISTING SYSTEM

These systems primarily rely on conventional methods of communication and support, such as in-person legal consultations, periodic medical check-ups, and limited vocational training programs conducted within prison premises. However, these approaches often fall short in addressing the diverse and evolving needs of under trial detainees, particularly in terms of accessibility, confidentiality, and effectiveness. Monitoring of interactions between prisoners and external parties, such as lawyers and healthcare professionals, are typically manual and labour-intensive processes, lacking real-time oversight and data analytics capabilities.

In the current setup, services are compartmentalized, with distinct channels for legal consultations, healthcare provision, and vocational training. For instance, under trial detainees typically have to navigate separate processes to access legal advice through lawyer visits, medical care via clinic appointments, and vocational training opportunities within the prison facility. This segregation of services can create barriers to holistic support and coordination between different aspects of rehabilitation.

Furthermore, the existing system lacks integrated monitoring mechanisms for interactions between prisoners and external parties, such as lawyers and healthcare professionals. Monitoring efforts are typically manual and labour-intensive, relying on periodic checks and paper-based records. This manual approach not only consumes significant

resources but also lacks real-time oversight and data analytics capabilities, limiting the ability to identify and address issues promptly.

In summary, the current system of supporting under trial detainees faces significant shortcomings in terms of integration, monitoring, and provision of vocational training opportunities. Addressing these deficiencies requires a more holistic and technology-driven approach that promotes accessibility, confidentiality, and effectiveness in delivering support services to under trial detainees.

V. METHODOLOGY

The proposed solution is to develop a mobile application that is dedicated to facilitate the rehabilitation process for under trial prisoners in India. Latest tools like React Native and Firebase can offer a user-friendly interface through which prisoners can engage in confidential communication with the lawyers for legal consultations and advice. This feature is particularly crucial, considering the complexities of the legal system and the difficulties faced by detainees in accessing timely legal assistance.

Access to medical health facility

One of the major feature available in the App is to address the lack and freedom to access the medical health possibility of requesting to a healthcare attention that can be sought by the applicant. Therefore, this application extends essential healthcare support to under trial prisoners through interactive clinic sessions conducted remotely. This remote healthcare feature addresses the mental and physical well-being of detainees, ensuring that they receive necessary support and care even while incarcerated.

Loss of Autonomy and Lack of Purpose

The absence of educational and stimulating programs in prisons creates an environment of boredom and mental stagnation. This lack of activity, as evidenced by a 2003 study in England, can have detrimental effects on incarcerated people's mental well-being, leading to feelings of extreme stress, anger, and frustration [3]. The family of the under trial prisoners are mostly unaware of the procedures or formalities that should be followed to release their family members from the imprisonment. Especially when the affected family is illiterate the chances still narrow down [5].

Therefore, in order to engage the prisoners' in any of the activities or vocational training modules that can aid in enhancing prisoners' skills and employability post-release, this application provides a feature to schedule training programs. By providing access to practical training and educational resources, the application empowers detainees to acquire valuable skills that increase their chances of successful reintegration into society upon release.

Central to the effectiveness of this initiative is the implementation of administrative oversight mechanisms to ensure compliance and monitoring of conversations. This oversight not only upholds security and confidentiality standards but also fosters trust and confidence among users, including both prisoners and legal professionals.

In essence, the development of this mobile application represents a significant step towards leveraging technology to address the rehabilitation needs of under trial prisoners in India. By offering tailored support, promoting skill development, and ensuring accountability, this initiative holds the potential to contribute to a more rehabilitative and inclusive justice system, ultimately facilitating the successful reintegration of under trial detainees into society.

In addition to the core features aimed at facilitating legal consultations, healthcare support, and vocational training, the mobile application also incorporates elements that are designed to foster community and social support to the under trial prisoners.

Moreover, this platform acts as a bridge to connect the gap between under trial prisoners and legal professionals, facilitating more efficient and effective communication and collaboration in navigating the legal system. By breaking down barriers to access and providing a secure and confidential platform for engagement, the application empowers both prisoners and lawyers to work together towards achieving fair and just outcomes. Ultimately, by promoting transparency, accountability, and equal access to legal resources, this initiative strives to uphold the principles of justice and dignity for all individuals involved in the criminal justice system.

This mobile application represents a significant milestone in addressing the rehabilitation needs of under trial prisoners in India. By providing a user-friendly interface for legal consultations, healthcare support, vocational training, and community engagement, the application offers a comprehensive solution to the challenges faced by individuals

awaiting trial. With its emphasis on accessibility, confidentiality, and accountability, the application serves as a vital tool in promoting the rights and well-being of under trial prisoners while facilitating their successful reintegration into society. This paper aims to explore the background, architecture, functionalities, results and discussions of the mobile app for prisoners rehabilitation

VI. RESEARCH GAPS

The exploration of the existing system of supporting under trial detainees reveals several potential research gaps. One such gap lies in understanding the impact of service fragmentation on rehabilitation effectiveness, particularly concerning the separate channels for legal consultations, healthcare provision, and vocational training.

Investigating how this fragmentation impedes coordination and access to comprehensive support services could inform strategies to streamline service delivery. Additionally, the efficacy of monitoring mechanisms for prisoner interactions remains understudied, highlighting the need to assess the limitations of manual oversight and explore technological solutions for real-time monitoring and analytics.

Furthermore, the adequacy of vocational training programs within the prison system presents another research gap, with studies needed to evaluate the extent to which current offerings meet detainees' diverse skill sets and employment needs, and to propose enhancements for better post-release outcomes. Addressing these gaps can contribute to a more nuanced understanding of the challenges within the existing system and inform the development of more effective rehabilitation interventions for under trial detainees.

VII. ARCHITECTURE

The system is developed for five distinct user types: admin, lawyers, prisoners, clinic staff, and prisoners' family members. In the proposed architecture, the login module serves as the entry point for all the users. When a new account is requested by a lawyer or clinic staff member, the request is forwarded to the admin for approval. Upon the admin approval, the account creation process proceeds, and the user gains access to the platform. All user account information, including login credentials and profile details, is securely stored in the database.

This architecture ensures that account creation is subject to administrative review, maintaining control over user access and safeguarding the integrity of the platform. By centralizing account management through the admin interface, potential security risks are mitigated, and unauthorized access is minimized. Additionally, storing user data in the database facilitates efficient retrieval and management of user information, enabling seamless authentication and personalized user experiences within the application.

Overall, this architecture promotes security, accountability, and efficient user management, ensuring that the platform operates smoothly and securely.

ARCHITECTURE OVERVIEW

A prisoner rehabilitation app is crafted utilizing React Native and Firebase technologies, ensuring cross-platform compatibility and real-time data synchronization. Through the app, prisoners can access features like legal consultations, clinic sessions, and vocational training modules. Admin oversight, secure user authentication, and encrypted data storage bolster the app's security. It fosters rehabilitation by providing comprehensive support and empowering prisoners towards successful reintegration.

Following are the modules available:

i) Chat Page: The chat page allows users to engage in real-time conversations, seamlessly updating messages without requiring page reloads. Users can exchange messages securely and efficiently, fostering immediate communication between prisoners, lawyers, and other stakeholders. Utilizing Firebase's real-time database, messages are synchronized instantly across devices, ensuring a smooth and uninterrupted chat experience. This synchronous updating feature enhances collaboration, support, and engagement within the application, facilitating effective communication and rehabilitation efforts.

ii) Training Modules: Training modules feature curated content uploaded by the admin, covering various vocational skills and educational topics essential for rehabilitation. Users access these modules through the app, enabling convenient learning at their own pace. The user-friendly interface allows for seamless navigation and engagement with the training materials. With access to a diverse range of training resources, users can enhance their skills and

knowledge, preparing them for successful reintegration into society post-release. This feature empowers users to acquire valuable skills and pursue personal growth, contributing to their rehabilitation journey.

iii) User Modules: Lawyer Module, Clinic Module, Prisoner and Prisoner family Module and Admin

iv) Module Technology Stack: The platform is developed using the React Native framework, which provides a robust and secure foundation for app applications. The front end is built using React Native. Data administration is handled through the Firebase database, which offers efficient management of user data and interactions.

FEATURES

In the realm of software engineering, the functionalities encompasses a multifaceted array of functionalities designed to support the rehabilitation journey of undertrial prisoners in India comprehensively. Through secure user authentication, prisoners, lawyers, clinic staff, and administrators gain access to tailored features aimed at addressing their specific needs. Legal consultations enable confidential communication between prisoners and lawyers, facilitating legal assistance and advice.

Interactive clinic sessions offer remote healthcare support, including medical consultations and mental health services. Curated vocational training modules provide opportunities for skill development and enhance prisoners' employability post-release. An administrative dashboard ensures oversight and management capabilities for administrators, while a real-time chat interface fosters seamless communication among users.

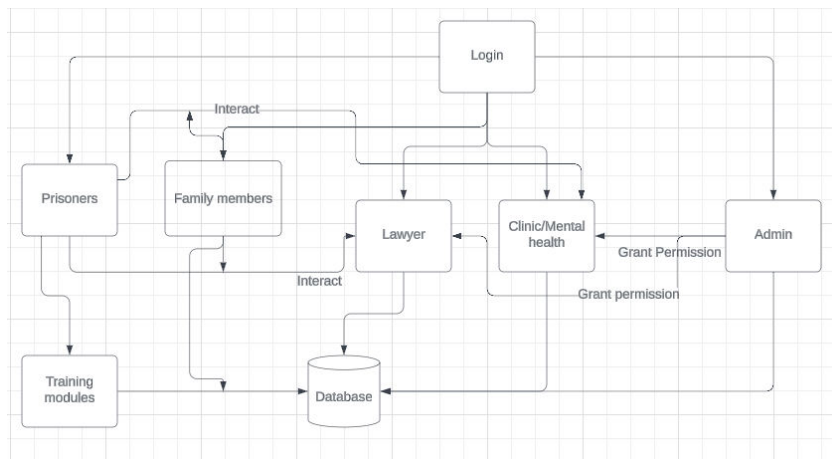


Figure 1: Flow Diagram - Mobile App for Prisoner Rehabilitation

PROFILE SELECTION

The system initiates with a profile selection interface, allowing users to choose their role within the application. Users are prompted to select from predefined profiles such as "Lawyer," "Healthcare Professional," "Prisoner," or "Family Member." Upon selection, users are directed to a tailored dashboard interface catering to their specific needs and permissions within the system. This profile selection process ensures that each user has access to relevant functionalities and information, facilitating a personalized and efficient user experience.

UNDER TRIAL PRISONER MODULE

In the prisoner module, incarcerated individuals have access to essential features aimed at their rehabilitation and support. Through the chat functionality, prisoners can engage in communication with lawyers and clinic staff, seeking legal advice and medical assistance as needed. Additionally, prisoners have the opportunity to access vocational training modules curated by the admin, enabling them to develop valuable skills and enhance their employability prospects post-release. By integrating these features within the prisoner page, the platform fosters communication, skill development, and empowerment among incarcerated individuals, contributing to their rehabilitation and successful reintegration into society

PRISONER FAMILY

In the Prisoner family module the Prisoner family members are granted the ability to communicate directly with lawyers and clinic staff through text-based messaging functionality. This feature serves as a crucial link, enabling

families to seek legal counsel, and inquire about medical updates or treatment plans for their incarcerated loved ones. By facilitating direct communication between prisoner families, lawyers, and clinic staff, the platform enhances transparency, fosters collaboration, and strengthens support networks crucial for the rehabilitation process. This seamless communication channel empowers prisoner families to play an active role in advocating for their loved ones' rights and well-being within the legal and healthcare systems

ADMIN

The admin module grants administrators extensive control over user accounts, allowing them to manage permissions, profiles, and account-related issues. Additionally, administrators have the authority to approve account creation requests for lawyers and clinic staff, ensuring compliance and appropriateness.

Approve Account Creation Requests: Admins have the authority to approve user account creations for lawyers and clinic staff, verifying the validity and appropriateness of each request. They review incoming account creation requests, ensuring compliance with platform policies and guidelines before granting access.

Manage User Accounts: Administrators oversee all user accounts within the system, managing permissions, updating profiles, and addressing account-related issues. They ensure the smooth functioning of user accounts and handle any account-related queries or concerns that may arise.

Training Module Administration: Administrators have the authority to add training modules to prisoners, curating educational materials tailored to their rehabilitation needs. This includes selecting relevant content, uploading resources, and organizing modules for user access.

Chat Page Access: Admins have access to a comprehensive chat page, enabling them to view the complete message history between any two users on the platform. This feature facilitates monitoring communication for compliance, providing assistance, and maintaining transparency within the system.

LAWYER

In the lawyer module, legal professionals can directly communicate with prisoners and their families, offering legal counsel and updates on case proceedings through text-based messaging. Additionally, they have access to a dedicated section to review pending cases, facilitating efficient case management and tracking of legal matters. This streamlined communication channel fosters transparency and collaboration between lawyers, prisoners, and their families, enhancing the legal support provided within the platform.

CLINIC

In the clinic module, healthcare professionals can engage in direct communication with prisoners and their families, providing medical assistance and updates through text-based messaging. This feature facilitates timely access to healthcare services and enables healthcare providers to address prisoners' medical needs effectively. Additionally, the clinic module supports communication with prisoners' families, allowing for the dissemination of important health-related information and updates. By fostering communication between healthcare professionals, prisoners, and their families, the clinic module enhances the delivery of healthcare services and promotes overall well-being within the prison system.

VIII. RESULTS AND DISCUSSION

The appended screenshots below depicts a comprehensive summary of the developed App in a sequence of steps.

i) **User Registration:** Fig. 1 guides the users of the system (namely) under trial prisoners, Lawyers, Healthcare Faculty and Close Family members to register as a Valid user.

ii) **Admin:** plays the role of request denial/approval, and is also given the feature to view conversation that has been going across any two users. This is just to ensure that the conversations are really healthy and to prevent any unnecessary forthcoming issues.

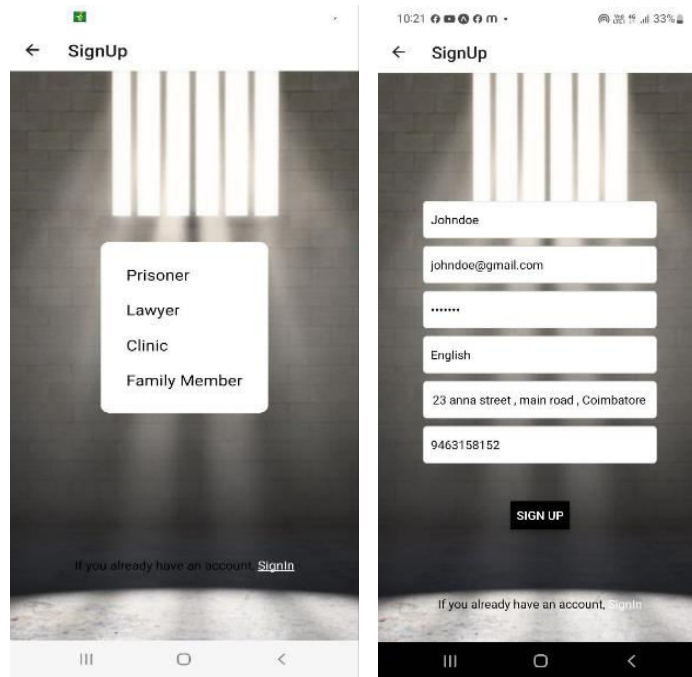


Fig 2 user signup/registration

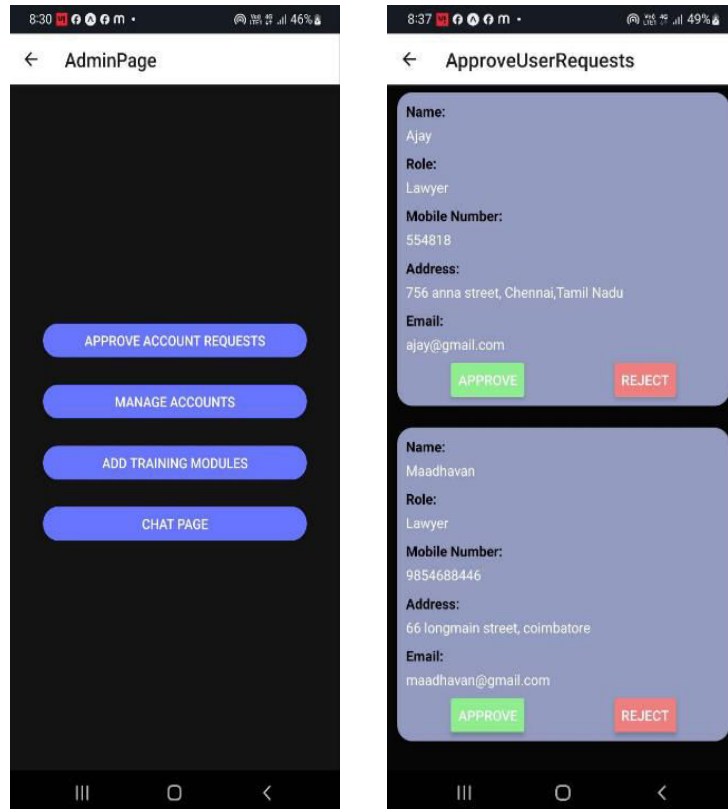


Fig 3 admin features and request approval page

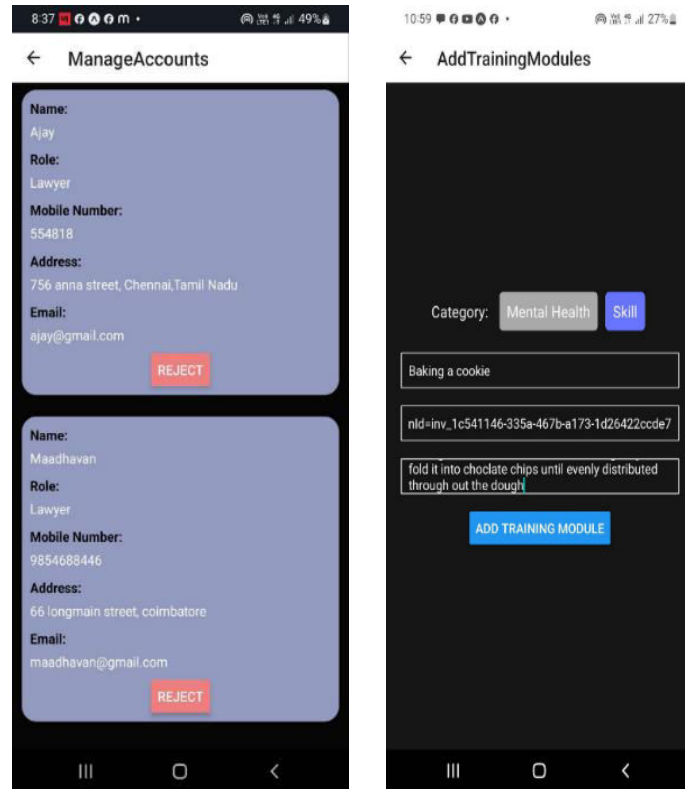


Fig 4 admin manages user accounts and adding training modules

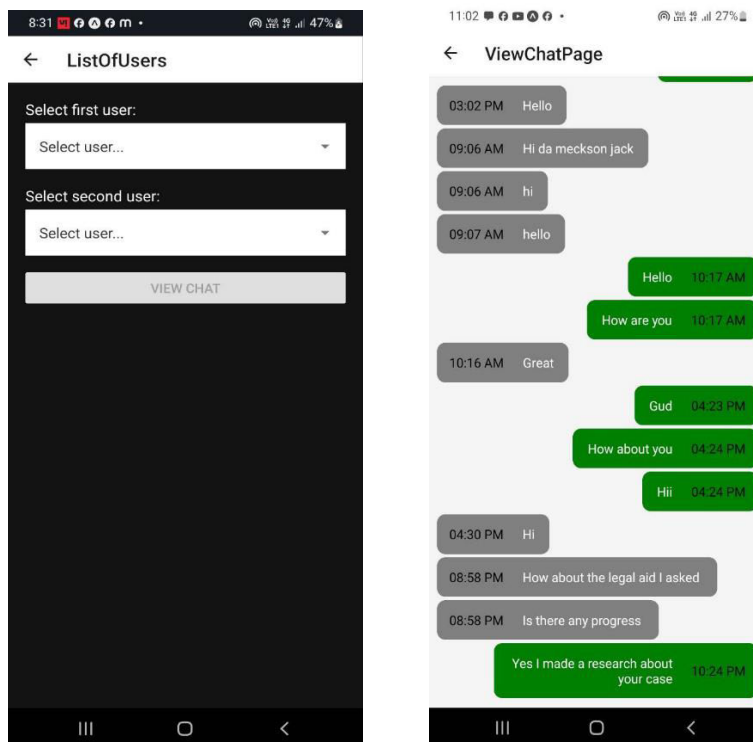


Fig 5. admin views users chats

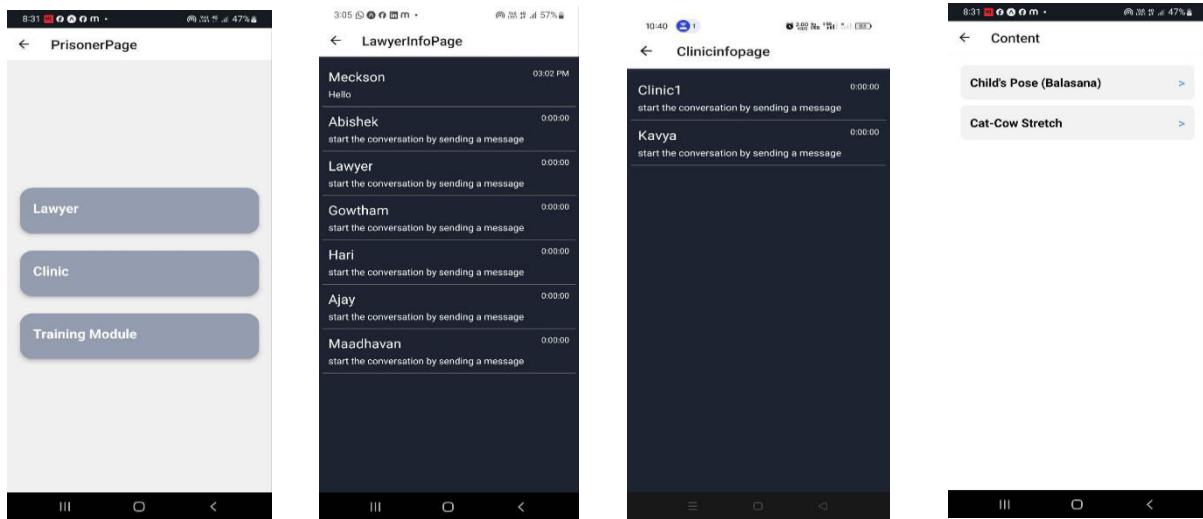


Fig 6. prisoners landing page, chat with lawyers, clinic and accessing training modules

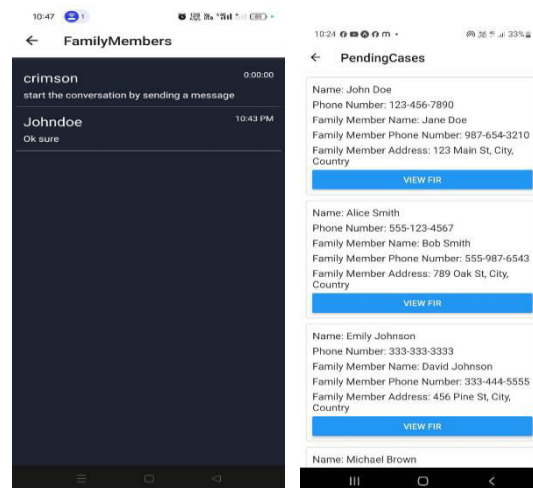


Fig 7 prisoner family shown to lawyer and pending cases of prisoners

IX. CONCLUSION

In conclusion, our mobile application offers a ground breaking solution to the rehabilitation of undertrial prisoners in India. Through streamlined communication and personalized support services, we aim to empower prisoners, facilitate their rehabilitation, and promote their successful reintegration into society. With a focus on efficiency and inclusivity, our project represents a significant step towards fostering a more supportive and humane criminal justice system.

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